# System Tables and Their Uses
## *Downloadability*
Tue, Jul 15, 2003

There are 32 tables defined in a table directory that is located at `0x00400000` in 162-based stations and `0x48000000` in PowerPC stations. This list briefly identifies each in terms of their candidacy for downloading. Tables numbered 0–31 are described.

```
ADATA    EQU      0         ;Analog data
```
Contains settings and alarm info about all analog channels. To download settings properly, setting messages should be sent for each controllable channel. If this table is downloaded directly, then a system reset must be performed to cause the settings to be issued to the hardware. Note: This "automatic restore of settings" at reset time can be *inhibited* by setting option switch #6, which is on the front panel in 162-based IRMs, or on the Digital PMC Access board in PowerPC-based nodes. Normally, this switch should *not* be set.

```
ADESC    EQU      1         ;Analog descriptors
```
These records contain scale factors, names, and text for all analog channels. Can be downloaded record by record. The analog name hash table is automatically filled during downloading as well as following a system reset. If this table is downloaded directly, a system reset will be necessary to correctly populate the name hash table.

```
BALRM    EQU      2         ;Binary alarm status
```
These are binary alarm flag words and trip counts for every binary bit. They can be downloaded, if desired. Note: Acnet does not use binary bit-based alarms. But there may be silent bit alarms that are used for keeping diagnostic trip counts. In Acnet, binary alarms are based upon "combined status words."

```
BDESC    EQU      3         ;Binary bit titles
```
Every bit has a 16-character title or description in this table. It can be downloaded anytime. Acnet doesn't use these titles directly, but they serve to describe the meanings of all binary status bits known to the system, so they should be kept up-to-date.

```
RDATA    EQU      4         ;Read Data Access Table
```
The Data Access Table holds a list of instructions used to update the local data pool each cycle. It should preferably be downloaded all at once, as it is always "live."

```
BBYTE    EQU      5         ;Binary raw status bytes
```
These are the readings of all binary status bytes (8 binary bits per byte) in the system. They are used as setting values to update the digital hardware during the automatic restore at system reset time. Although one should issue settings for each byte to download this correctly, it is probably easier to perform a system reset.

```
PAGEP    EQU      6         ;Page pointers
```
The 16-character page titles and associated page program names are kept in this table. It can be downloaded if no page program is active.

```
PAGEM    EQU      7         ;Page private memory
```
Page context is maintained in this table. It can be downloaded, but it should also be done only when no page program is active.

```
LISTP    EQU      8         ;Active list pointers
```
This is a dynamic table of "list#s" associated with active data requests. Downloading is neither necessary nor desired.

```
CODES    EQU     9         ;Downloaded named programs
```
This is a directory for the memory-resident file system that is used to house downloaded page and local applications in nonvolatile memory. This cannot be downloaded; rather, it is automatically filled as programs are downloaded via TFTP or copied into the system using the Download page. PowerPC-based systems do not use this table.

```
CDATA    EQU     10        ;Comment alarm data
```
These records contain alarm flags and counts for comment alarms, such as system reset and alarms reset "events." Usually these are marked disabled in Acnet.

```
BADDR    EQU     11        ;Binary byte addresses
```
For each binary byte there is an address that is used for accessing the byte of data and/or controlling it. This table of addresses can be downloaded as needed.

```
OUTPQ    EQU     12        ;Output pointer queue
```
This is a dynamic table used for a token ring message queue. It should not be downloaded.

```
PRNTQ    EQU     13        ;Print message queue
```
This is a dynamic table that houses the serial port output queue. It should not be downloaded.

```
LATBL    EQU     14        ;Local applications
```
This table holds the list of local application instances and associated parameter values. To download this table, first insure that all local applications presently running, if any, are disabled. Each entry to be downloaded must be modified to have a null static variables pointer and the "last status" cleared to indicate inactive.

```
CPROQ    EQU     15        ;Coprocessor message queue
```
This table's records identify the location and size of coprocessor message queues located in shared memory. They are not used in Acnet stations.

```
MMAPS    EQU     16        ;Memory-mapped templates
```
Entries in this table support selective downloading into special hardware memory boards via vertical interconnect. It is used only for D0, which probably already has a means of downloading the needed board templates.

```
Q1553    EQU     17        ;1553 controller queue ptrs
```
Dynamic table for 1553-based rack monitors. Downloading inappropriate.

```
DSTRM    EQU     18        ;Data streams
```
Defines location and sizes of data streams. Entry #0 and #1 are standard and used in all stations. #0 provides for network frame diagnostics. #1 supports a settings log. Additional data streams are defined and downloaded for other purposes. A system reset is required to initialize the related data stream queues.

```
SERIQ    EQU     19        ;Serial Input Queue
```
Dynamic queue of serial input data. Downloading inappropriate.

```
TRUNK    EQU     20        ;Acnet IP addresses
```
Acnet IP addresses for trunks 9, 10, 11, .... Filled by AAUX local application. Downloading unnecessary, except for OPER IP address at entry for 0x09EA.

```
TBL21    EQU      21        ;spare
```
Undefined.


```
TBL22    EQU      22        ;spare
```
Undefined.


```
ADEVX    EQU      23        ;Acnet device indexes
```
Potential Acnet device indexes by Chan#, for future use in alarms for AEOLUS.


```
CSTAT    EQU      24        ;Combined status words specifications (Acnet)
```
Table entries define construction of 16-bit word binary status words. Table can be downloaded. Entries are referenced by Data Access Table entries type 0x26.


```
CINFO    EQU      25        ;Channel info
```
Holds extra info for some analog channels, especially fast digitizer-related.


```
FDATA    EQU      26        ;Floating point analog data
```
Raw floating point channel readings, settings, nominals, tolerances.


```
IPNAT    EQU      27        ;IP Node Address Table (node#s, IP addresses)
```
This table is a cache of IP addresses received from DNS queries based on node# names of the form NODE0576, for example. It can be downloaded. The important part is the header that includes the IP address of the DNS node and an up-to-16-character default suffix for node names NODExxxx.


```
IPARP    EQU      28        ;IP "ARP" Table, incl. IP security table
```
From scratch, this Internet Protocol table's header is automatically initialized at reset time. Then additional info must be filled in, such as station's IP address, subnet mask, gateway IP address and MTU's. A system reset must be performed to activate IP support.


```
MAP32    EQU      29        ;Mapping 24 bits to 32 bits
```
Used for mapping 3-byte addresses from analog control fields into 32 bit addresses. Can be downloaded.


```
TRING    EQU      30        ;Token Ring Network Table
```
Includes network-related tables and variables. Named for the original network, but now used with ethernet. Some parts of this table can be downloaded.


```
DLOAD    EQU      31        ;Download area (last word: table directory entry cksm).
```
From scratch, initialized empty at system reset time. Automatically filled by programs that are downloaded via TFTP or copied via the Download page. Downloading this "table" directly is inappropriate. Usually 192K bytes in size. Not used in PowerPC systems.